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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,858	08/09/2001	A. Dorian Challoner	PD-990136 (BOE 0146 PA)	7230
7590 12/11/2003			EXAMINER	
Angela M. Brunetti Artz & Artz, P.C. Suite 250 28333 Telegraph Road Southfield, MI 48034			FAYYAZ, NASHMIYA SAQIB	
			ART UNIT	PAPER NUMBER
			2856	
DATE MAILED: 12/11/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/927,858

Applicant(s)

CHALLONER ET AL.

Examiner

Nashmiya S. Fayyaz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

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1. Claims 1-13 and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, on lines 3-4, it is unclear how the “resonator plate” is “for sensing and actuation of the resonator plate”. In claim 5, on line 8-9, it is still unclear what “mistuning” is detected or what the “asymmetry” is of; and what “signal” is measured. Also, the recitation of “negative electrostatic stiffness” is not understood. Also, what does a “higher frequency resonator vibration mode” on the last 2 lines of claim 5. Refer to? In claim 8, on lines 6, “the resonator plate rocking motion” lacks antecedent basis. On line 10, “the mechanical misalignment  $K_{xy}$ ” lacks antecedent basis. On lines 12-13, it is unclear what “mechanical asymmetry” is being referred to, and which “signal” is being referred to or is it measured? On lines 14-15, it appears that the “electrode” should be specified as different from that of line 12. Also “negative” stiffness is not understood, as well as what “resonator vibration mode” is referring. In claim 13, “said step of correcting said misalignment” lacks antecedent basis. Also, what “sensors” are being referred to? In claim 15, on line 1 claim is misspelled. Also, is a or another “drive electrode” on lines 2-3 different from the four electrodes of claim 8? In claim 16, “each drive electrode” is unclear and “said drive axis” lacks antecedent basis. In claim 18, “said step of correcting ... to zero” lacks antecedent basis. Further, in claims 5 and 8, it is unclear how in the 4 electrode arrangement (as claimed), how “residual mistuning” is corrected since only the 8 electrode example is given and no description of 4 electrode tuning is found.

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2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 5-13 and 15-18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claims 5 and 8, it is unclear how tuning is accomplished on a 4 electrode design. Also, it is unclear how correction of mistuning is accomplished by producing a “negative electrostatic stiffness” by reducing the frequency. Also, where is support for reducing the frequency of a higher frequency resonator mode”?

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cargille U.S. Patent #6,164,134.

As to claims 1-4, as best understood, Cargille discloses a balanced vibratory cloverleaf micro gyroscope having an electrode pattern of four inner drive electrodes and four outer sense electrodes and a control circuit to process output signals and control the drive electrodes, note Fig. 2 and Fig. 4, and col. 3, lines 45 et seq. Further, there is described a tendency for a Coriolis force to cause the baton to move along other axes and electrodes 50/52 sense this tendency to rotate upon “output axis” 30 and usage of a negative feedback loop 68 to provide a corrective, re-balance signal to the first and second rate driving electrodes 46 and 48 to offset movement of the baton, see col. 4, lines 62 et seq. It is noted that misalignment of “a sense axis” is not

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specifically recited. However, as the 3 axis of the micro gyroscope are mutually orthogonal, such a correction would have been obvious to one of ordinary skill in the art at the time of the invention as equally applicable to correct the orientation of any "axis" by the application of such a re-balance signal.

5. Applicant's arguments with respect to claims 1-13 and 15-18 have been considered but are moot in view of the new ground(s) of rejection.

With regard to Applicant's arguments indicating that Cargille teaches applying a signal to second electrodes vs. "An electrode" in the present invention.

Such an argument is not found persuasive because the "an electrode" limitation is met by Cargille who applies a signal to one electrode and another signal to another electrode.

With regard to the support for the recitation of "negative stiffness", support is not found on the pages indicated on page 9 of the remarks.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

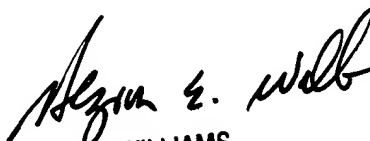
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1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication should be directed to N. Fayyaz at telephone number (703) 305-4891.

  
N FAYYAZ/pj

11/24/03

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800